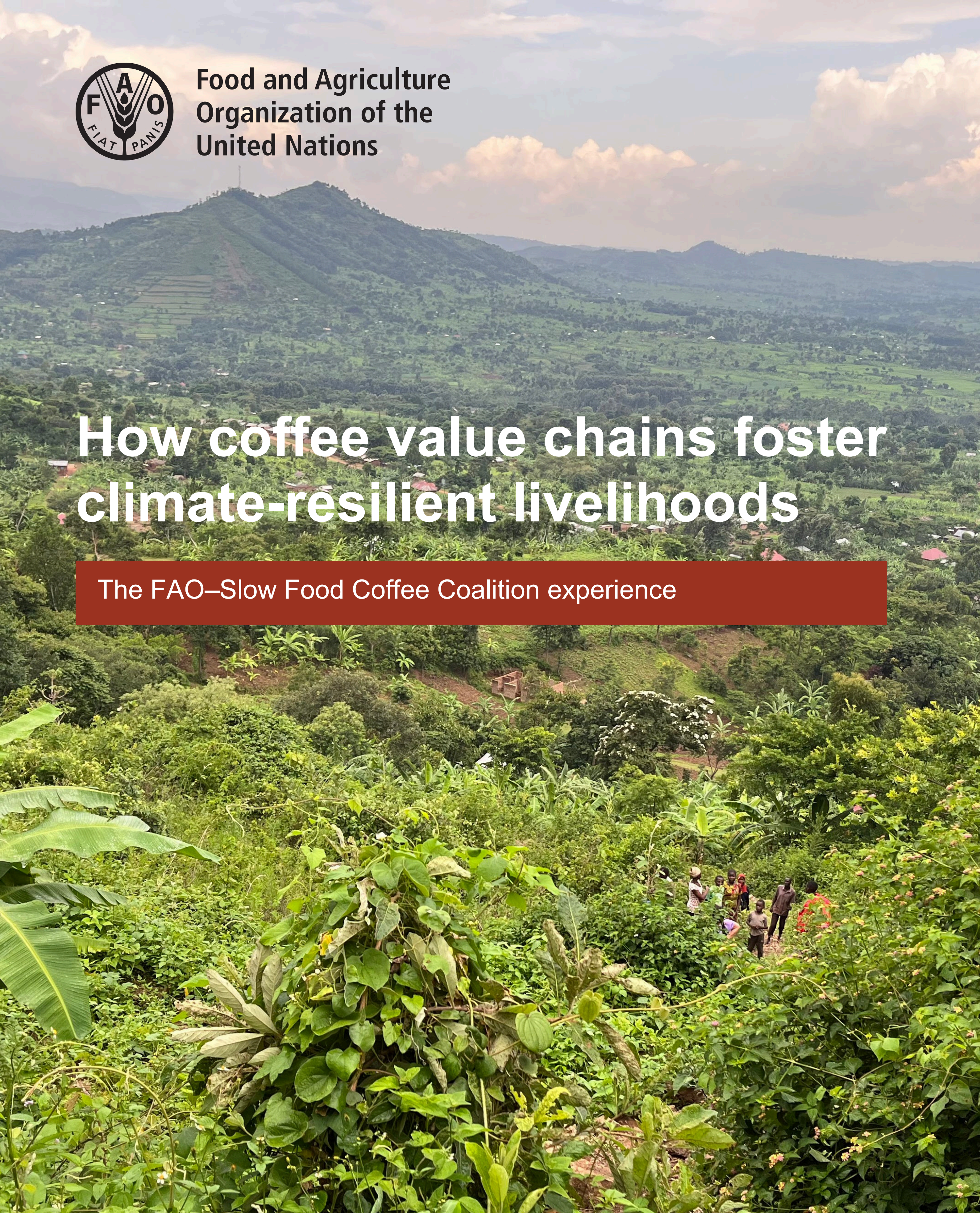

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How coffee value chains foster climate-resilient livelihoods

The FAO–Slow Food Coffee Coalition experience

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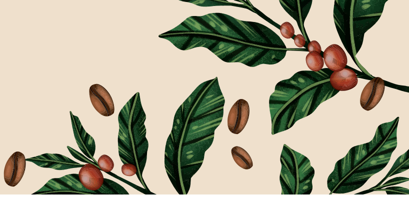

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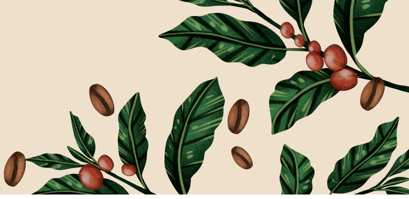

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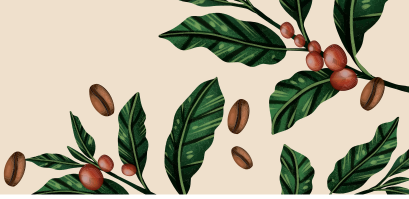

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Abbreviations

FAO	Food and Agriculture Organization of the United Nations
MAFF	Japanese Ministry of Agriculture, Forestry and Fisheries
PGS	participatory guarantee system
SFCC	Slow Food Coffee Coalition

1. Fostering climate-resilient livelihoods dependent on coffee production

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Scope

Rural communities in developing countries are highly dependent on natural resources for their livelihoods. With a changing climate affecting crop production and access to food, climatic vulnerability stands as a major restraint for ensuring the soundness of ecosystems and agricultural practices needed for the maintenance of rural communities and their livelihoods.

Climate risks should be considered and addressed – specifically in agricultural production and generally in landscape management – thereby improving the resilience of farmer communities. Sustainable agricultural practices and climate-aware management are logical solutions for increasing climate resilience. The integration of both can be found in food production systems that interact with community needs and local biodiversity.

Coffee production faces several climatic hazards, such as changing temperatures, shifting precipitation patterns and extreme weather events, which directly impact coffee quality and productivity levels, therefore also affecting its price and market. These shocks immediately affect coffee growers and cooperatives, but will eventually reach traders, roasters, retailers and consumers. If climate-driven risks remain, some traditional production zones will no longer be suitable for growing coffee or may reduce its production capacity, creating a need to introduce new agricultural practices or enhance those present to reduce the vulnerability of this crop to climate change (specifically extreme weather events) and buffering its market volatility.

This document introduces how agroforestry coffee improves resilience and ensures livelihoods in the context of climate risk and access to markets. Our intention is to reflect on the benefits and constraints of agroforestry coffee production, good practices for facilitating a fair and sustainable value chain, and what is needed for promoting and maintaining the adoption of said practices.

The following sections present activities performed in Malawi and Uganda by the Slow Food Coffee Coalition (SFCC), whose approach highlights the importance of engaging all actors from the coffee value chain to allow for the strengthened livelihoods of coffee growers.

Section 1 presents the concepts of climate risk, climate vulnerability of coffee production, the benefits of agroforestry, and the approach that guided activities on the ground. Section 2 describes constraints for smallholder coffee growers in Malawi and Uganda, as well as exemplifies how coffee growers can benefit from a product premium for accessing sustainable and fair value chains, allowing for secured incomes and the adoption and maintenance of agroforestry. Section 3 closes with lessons learned and successes to be replicated elsewhere.

Appendix 1 is dedicated to a curated list of materials and sources of information on the concepts introduced. In-text quotes throughout the text feature the voices of participating producers and facilitators.

This publication aims to:

- speak to those interested in sustainable coffee production and climate-resilient agricultural value chains, presenting the process and results of this successful experience that may provide insights for similar activities and initiatives to be conducted elsewhere; and
- raise awareness among practitioners and managers on how to include good practices that offer doubled benefits, while advocating for a sustainable and fair value chain in which all actors take responsibility for ensuring the livelihoods of coffee growers and rural communities.

What is climate risk?

Climate change – manifesting under a wide range of hazards[1] – is increasing the magnitude, frequency, duration and severity of climate-related impacts to human and natural systems (IPCC, 2023). Unseasonal rainfall, extreme heat, frost, drought, windstorms and fires are the most common examples of experienced climatic hazards, which have potentially adverse consequences in the most vulnerable contexts.

Incorrectly perceived as natural disasters, climatic hazards are risks that do not inevitably lead to a disaster; however, millions of people are killed, injured, displaced or made poor by these events each year. In 2022, 387 recorded events affected 185 million people, from which 8.7 million were displaced and 30 704 were killed (CRED, 2023). In addition, 56.8 million people living in 12 countries face acute food insecurity driven by weather extremes – overall losses reach USD 270 billion.

Disaster risk is magnified by climate change, as it can increase the scale of the hazardous event while decreasing the resilience of households and communities. As increasing exposure, high levels of inequality, rapid urban development and environmental degradation grow, disaster risk increases to unsustainable levels. If current trends continue, the number of disasters per year may increase from 400 in 2015 to 560 by 2030 (UNDRR, 2022). The average annual economic loss from disasters has more than doubled over the past three decades – from around USD 70 billion in the 1990s to just over USD 170 billion in the 2010s.

Any adverse impact experienced by human and natural systems depends on the scale of the hazardous event and the conditions of exposure, vulnerability and coping capacity of affected areas.

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Climate risk is disproportionately concentrated in developing countries and within the poorer sectors of the population. Poverty and constrained access to productive assets mean that rural livelihoods that depend on agriculture and other natural resources are particularly vulnerable to hazardous events, variations in weather and seasonality. For communities directly relying on ecosystems, the ability to acquire materials required for maintaining or restoring their livelihoods in the event of disasters, including timber, firewood, food and raw materials for medicine, is highly significant for recovery and reconstruction.

It is paramount to address these changing trends and the different ways they affect regions, sectors of the economy and members of society.

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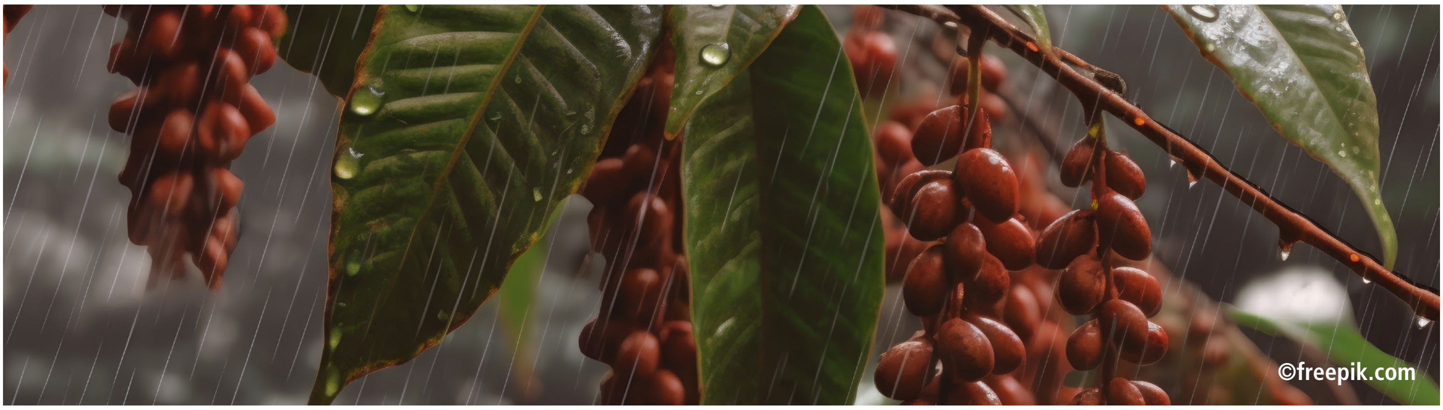
[1] Climatic hazards are weather-related events which can cause harm to humans, property, livelihoods, resources and the environment (UNDRR, 2020). Climatic hazards are also sometimes referred to as extreme weather events.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How climate change affects coffee production

Globally, the coffee sector provides employment and income directly to an estimated 25 million households in over 80 countries, of which 80 percent are smallholder farmers with production areas smaller than 5 hectares (Dzebo and Adams, 2022). After oil, coffee is the second-most traded commodity, with over 10 million tonnes produced in coffee year 2022/23 (ICO, 2023) – standing as a key enabler of rural economic activity and income source. In Africa alone, approximately 1.2 million tonnes of coffee were produced, with a 7.2 percent decrease from the previous year attributed to adverse weather conditions.

Coffee production is highly susceptible to climatic hazards, jeopardizing the livelihoods of smallholder farmers at risk. Negative impacts of extreme weather events include a reduction in coffee quantity and quality, as well as increased production costs due to the need for additional inputs or labour. Price volatility often prevents on-farm investments for climate preparedness action, mostly limited by small farm size, and reduced access to finance, knowledge and technology.

Smallholder farmers depend on crop yields for their livelihoods and are among the most vulnerable to both increased risk and higher production costs. Although they make up at least 70 percent of labour in coffee and own 19–35 percent of farms, women are especially vulnerable to less control over their income, limited access to production assets and less decision-making authority.

For 15 countries across Africa, Asia, Central America and South America (representing 90 percent of global coffee production), five key climate risks were identified:

1. loss of suitable area for coffee production and shifts to higher altitudes;
2. increased water stress;
3. poor flowering and cherry development due to rising temperatures;
4. increased outbreaks of pests and diseases; and
5. increased vulnerability of smallholder and female farmers.

Irregular and extreme rainfall, increasing temperatures and temperature ranges, and drought affect coffee production by changing pest, disease and weed presence[2] , as well as causing soil erosion, landslides, and irregular flowering. These impacts may be immediate, where a slight variation in temperature and water availability means losing the entire production. They are also hard to tackle in the long run. Coffee is a perennial crop, which means that adjusting farming practices requires longer times.

Changes in rainfall cause poor pollination, abortion of flowers and fruit, reduced bean size, heterogenous flowering, and longer harvests, affecting yield and quality when farmers collect green cherries together with ripe. Additional costs arise from storms with heavy wind and rain causing damage to trees and equipment.

By 2050, land suitable for coffee production is predicted to decrease by 49–56 percent, threatening the production, genetic heritage and diversity of coffee varieties (Solymosi and Techel, 2019). Shifting to new zones or expansion to more suitable ones could occur in areas already forested or used for other crops. A strong regulatory framework would be needed to manage deforestation risk.

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[2] Climate conditions affects the prevalence and distribution of pests and diseases. Warmer temperatures, excessive rainfall and high humidity create favourable conditions that promote the proliferation of certain pests and diseases, such as fungal and bacterial infections, as they may reproduce more rapidly in such conditions. As temperatures rise in certain regions, pests and diseases that were once limited to warmer areas may expand their range into new regions where they were uncommon.

Income-generating strategies for climate-resilient livelihoods

Identifying, assessing and understanding climate risk is critical to reducing it. As containing the occurrence and severity of climatic hazards cannot occur in an immediate timeframe, reducing vulnerability is one of the main opportunities for tackling it. Vulnerability reduction[3] focuses on mitigation measures that allow rural communities to prevent, reduce and better withstand damage of disasters on their lives, as well as recover and adapt when disasters cannot be prevented.

Introducing risk reduction strategies leads to increased resilience of agricultural livelihoods, natural resources and ecosystem services. The question then faced by communities, planners and policymakers is: Which risk reduction strategy should we pursue? This question requires understanding which measures, both preventive and responsive,[4] are likely to be most effective for the type of climate risk exposure they face and the level of vulnerability of their population. Moreover, trade-offs between risk reduction and economic growth must be considered and an inclusive approach that introduces climatic resilience into policies and investments is key.

Recognizing that agricultural practices are often the backbone of rural economies in developing countries, strengthening sustainable forestry and agriculture come as logical solutions for increasing climate resilience. Sustainable forest and land management practices play a crucial role in preventing, reducing and even mitigating potential disasters for both rural and urban communities.

Box 1. Sustainable forest management can prevent disasters triggered by extreme weather events

When protected and properly managed, forests fulfil multiple functions, such as the provision of water, food, energy and other resources essential for human well-being. Together with other natural ecosystems, they act as natural sinks and reservoirs of biodiversity and greenhouse gases, reducing global vulnerability to climatic hazards and environmental degradation. Catchment forests reduce the risk of floods by increasing the infiltration of rainfall and delaying peak floodwater flows. Vegetation cover and root structures increase slope stability, preventing landslides, mudflow and debris flow.

Moreover, forests are important for water recharge and purification, drought mitigation, and safeguarding drinking water supply. They hold agrobiodiversity that ensures food security, nutrition, and dietary diversity and quality; they generate income for smallholder farmers and aid conservation and restoration of biodiversity, traditional crops and diets.

An effective risk management strategy based on these ecosystems must consider the combined vulnerability and resilience of natural and human systems. It should enhance the resilience of nature as a means to reduce human vulnerability to risks, and in doing so, generate additional advantages for livelihoods.

Following this idea, this publication introduces agroforestry practices as a climate risk reduction strategy that preserves ecosystems, improves production, generates higher incomes and fosters resilient livelihoods. Promoting these systems together with good practices for coffee production aids in building resilience to cope with climate risks.

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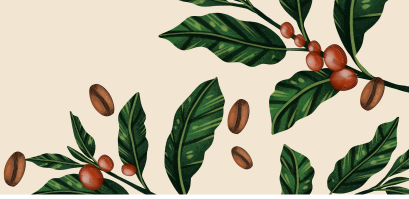
[3] Approaches to vulnerability reduction include preparedness measures, implementing building codes, insurance and social protection, emphasizing economic diversity and resilient livelihoods, and knowledge and awareness-raising (Arnold and de Cosmo, 2015).

[4] Prevention refers to activities and measures that avoid existing and potential disaster risks. Response refers to actions taken right before, during or immediately after a disaster that save lives, reduce impacts, ensure public safety and health, and meet basic needs and the subsistence of the people affected.



Agroforestry's contribution to sustainable and resilient livelihoods

Though agroforestry can be simply described as farming with trees, it involves the delicately balanced integration of trees in farming systems and their management to enhance productivity, profitability, diversity and ecosystem sustainability. The European Union defines agroforestry as land-use systems in which trees are grown in combination with agriculture on the same land;[5] however, these systems are dynamic and require an integrated approach to benefit from the resulting ecological and economic interactions of having said combination. Agroforestry is a collective term for land management systems in which woody perennials are deliberately integrated spatially or temporally on the same land management units as agricultural crops and/or animals to create economic, social and environmental benefits.

Agroforestry includes traditional and modern agricultural systems in which trees are managed together with crops and animals for enhanced production and land-use management. This type of land management:

- serves as a source of food and fibre, while also contributing to food and nutritional security, sustaining productive and resilient livelihoods, alleviating poverty, and enhancing well-being;
- enhances ecosystems by increasing forest cover and preventing deforestation, preserving biodiversity, reducing forest loss, and protecting water and soil resources;
- can reduce the risk of climate-related pests and diseases,[6] which improves farm health but also minimizes the use of fertilizers and the release of harmful chemicals into the atmosphere, contributing to climate change mitigation; and
- serves as an effective strategy for climate adaptation, storing carbon, clean water and healthy soils, while enabling agricultural lands to withstand shocks and stresses such as floods, drought and climate change (when its adoption goes beyond the farm level and is largely present at the landscape scale).

The benefits of agroforestry are multiple and challenging to list, particularly as interdependent benefits arise from integrated components and their interactions (FAO, 2013a). Moreover, benefits and contributions are dependent on the farming system in use,[7] the main species or product, and the purpose of the intervention (such as increased yield, increased quality, diversified production, self-consumption, protection or reduced costs).

“If one’s products fail, they can sell something else.”

©FAO/Oliviero Alotto

Table 1 groups benefits derived from agroforestry systems based on their productive functions (provision of food, fodder, fuel, water, and their contribution to income, nutrition and inclusion) and protective functions (shade, windbreak, soil conservation, and their contribution to disaster risk reduction and climate adaptation). It focuses on functions, rather than services,[8] as some of the benefits of agroforestry are not provided by ecological services but derived from management decisions (Dekens and Bagamba, 2014).

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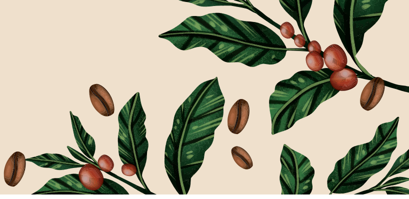
[5] For more information, see Article 23 of Regulation 1305/2013.

[6] Extreme weather events such as hurricanes, droughts and heavy rains have direct and immediate impacts on agriculture, damaging crops and making them vulnerable to the spread of diseases. Changes in climate can also impact the timing of pest and disease outbreaks.

[7] The types of agroforestry systems are commonly classified based on their structure and arrangement in space and time (Xu, 2013), as follows:
- **components:** agrosilvicultural (trees with crops), silvopastoral (trees with pasture and livestock), agrosilvopastoral (trees with crops and livestock) and other systems (trees with fisheries or insects);
- **spatial arrangement:** mixed, strip, zones, boundary, and vertical stratification; and
- **temporal arrangement:** coincident (entirely together), concomitant (together for a determined period), overlapping (growing cycles matching only in a certain period), interpolated (growing cycles not matching), and sequential (one after the other).

[8] Ecological services provided by agroforestry can be grouped as:
1. **provisioning services,** such as the production of food and water;
2. **supporting services,** such as nutrient cycles, production of oxygen, and soil formation;
3. **regulating services,** such as the control of floods and diseases; and
4. **cultural services,** such as spiritual and recreational benefits.



Box 2. Benefits of agroforestry production

Improved yields and reduced costs

Combining trees and crops creates a more favourable environment for plant growth, increasing yields and reducing the need for external inputs such as chemical fertilizers and pesticides, as well as leading to cost savings and higher farm profitability.

Fertilizer trees and fallen leaves and branches from other plant species release nutrients that enrich the soil and benefit crop growth, guaranteeing soil fertility in time. Trees intercept rainfall and stabilize the soil, reducing runoff and maintaining consistent moisture levels for crops. This also leads to water infiltration and regulated water flows, reducing the need for irrigation. By strategically placing tree and shrub species and breaking up the crop canopy, farmers control, reduce and even mitigate pests and diseases. Specific plant species that act as natural repellents prevent the occurrence of pests, while mixed species provide habitat for beneficial insects and predators, which naturally support pest control.

When the agroforestry system includes livestock, fodder trees provide a continuous supply of feed for livestock, increasing farm profitability and supporting animal health and production. When used as mulch or compost, these systems also reduce the amount of waste and post-harvest losses.

Social benefits and economic growth

Home gardens, multipurpose trees and non-timber forest products (NTFPs) provide additional resources for everyday use, such as firewood and medicinal products. These products can supplement diets and health, reduce labour, and diversify sources of income and time availability for households.

Trees planted along pathways or near homes increase the availability and access to firewood, particularly where it is scarce or unreliable. Reducing the amount of time and labour allocated to its collection, which is usually done by women, allows farmers to participate in other activities on and off the farm.

The harvesting and processing of agroforestry products generate income and employment for rural communities. Collective management of natural resources provides a sense of ownership and responsibility to local communities, encouraging the adoption of more sustainable and efficient land-use practices, as well as the participation of all community members including women and youth.

Traditional and Indigenous Peoples' knowledge about plant interactions and land management can help preserve cultural landscapes and traditional farming practices. Local knowledge is perceived in farmers' recognition and prioritization of the ecological services offered by native species. The inclusion of youth relates to an inheriting role of the agroforestry systems and practices; sharing this knowledge contributes to its preservation.

Food security and nutrition

Agroforestry systems incorporate edible species, which enable access to food, diversified nutritious diets and availability in time. Farm diversification, species richness and stories provide a broader range of food options, reduce dependence on a single crop and provide food for the household throughout the year. Some plants (usually fruit-bearing trees) serve as emergency foods when yields or prices are low and other food products are expensive or difficult to buy. These systems offer more reliable yields, and this stability of crops allows for a consistent food supply.

Agroforestry is also associated with food sovereignty, as farmers not only focus on growing cash crops, but also on food products demanded by the household, neighbours and local markets. This increased productivity also allows for the purchase of food when on-farm food is not in season, less easily grown or more easily purchased. Farmers offer a wide variety of products in local markets, increasing the dietary options at the community level.

Climate risk reduction

The integration of trees and crops contributes to the regulation of temperature and moisture levels. This extends to the landscape and global environment, as trees aid in cooling the planet by sequestering carbon dioxide through photosynthesis and keeping soil carbon stocks by stabilizing it and preventing erosion. At the landscape level, the mixed composition of species creates a mosaic of diverse and adaptable agricultural systems, better prepared against unpredictable extreme climate events.

Trees provide shade and act as windbreaks, which can help to reduce wind speed and evaporation, buffering the impacts of excessive rainfall and maintaining consistent moisture levels, as well as reducing the risk of drought-induced crop losses. Agroforestry components improve soil health and enhance water infiltration, as their root systems facilitate the absorption of rainwater and slow down surface runoff. The percolation into the soil replenishes underground aquifers, safeguarding freshwater, mitigating the risk of groundwater depletion and securing the long-term availability of water resources.

Ecosystem conservation and landscape restoration

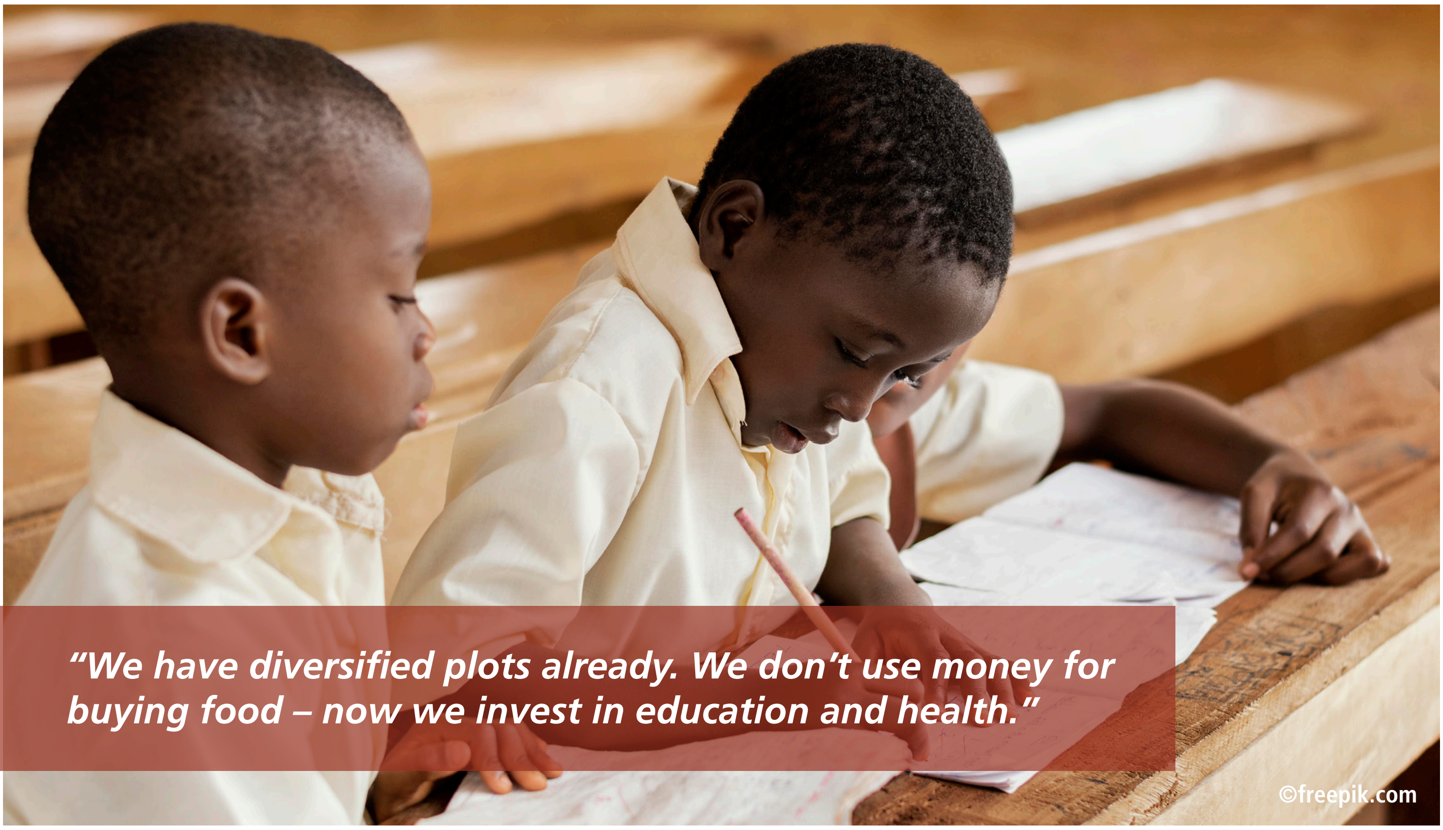
Agroforestry systems resemble natural ecosystems, sheltering diverse plant and animal species (particularly native species adapted to the local environment). They offer shelter, food and breeding grounds for insects, birds, mammals and other life forms, contributing to biodiversity conservation and the overall health of the environment. By managing and protecting native species and their relationship with wildlife, agroforestry preserves the cultural and ecological heritage of a region and preserves genetic resources for future agricultural productivity and environmental safety.

Agroforestry plays a crucial role in reducing deforestation and supporting landscape restoration; it also facilitates communities to meet their agricultural and development needs by integrating trees and crops within the same landscape. This reduces the pressure on natural forests in areas where these ecosystems are being cleared for agriculture or urban development.

Strengthening the coffee value chain for climate risk reduction

With climate uncertainties, an increase in the frequency of extreme climate events and the scale of hazards, agroforestry stands as an effective strategy for climate risk reduction. The multiple benefits of agroforestry systems make them highly resilient to climate variability.

As a concept, agroforestry has evolved from a focus on specific technologies for using trees on farms to an understanding of multifunctional landscapes with trees in multiple roles (Jha *et al.*, 2014); more recently, it has evolved further as a naturebased solution for disaster risk reduction. Apart from increased climate change resilience and mitigation potential, an important benefit for agroforestry farmers is strengthened economic resilience, as it offers multiple income streams at different times (FAO, 2013b). For some African countries, the importance of the agroforestry system producing coffee – as a key driver of rural economic activity and income source – cannot be understated.



"We have diversified plots already. We don't use money for buying food – now we invest in education and health."

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In many regions, adequate agroforestry inputs and knowledge do exist but are still not accessible to the farmers. For agroforestry systems to be adopted by farmers and organizations, they must be able to provide a profitable income to the farm; additionally, agroforestry value chains and market systems need to become more efficient, sustainable and profitable. An inclusive market systems approach should focus on connecting farmers to local and regional markets, which have shown to have the highest positive impact, as the growing middle class in developing countries and the relatively easy access to such markets by smallholder farmers is increasing.

The Food and Agriculture Organization of the United Nations (FAO) (through a Japanese-funding trust fund) and Slow Food (through the SFCC), came together for the design and implementation of a pilot project focused on demonstrating the benefits of agroforestry for livelihoods in terms of access to markets and risk mitigation measures. Both organizations share common objectives concerning the improvement of the livelihoods of populations living in rural areas (in particular, communities and households of smallholder farmers) and ensuring more inclusive agrifood systems at local, national and international levels.

The FAO project, **Enhancing community resilience to climate change in mountain watersheds,** financed by the Japanese Ministry of Agriculture, Forestry and Fisheries (MAFF), aims to strengthen the capacities of institutions and communities in forest-based disaster risk reduction in mountain watersheds, as well as increasing the resilience of local populations through sustainable agricultural value chains for improved livelihoods.

The approach guiding the activities under the project arises from the need to enhance institutional and technical capacities on risk-based watershed management, participatory assessment and planning at regional and community levels, as well as the implementation of identified measures, including on-farm adaptation practices, capacity development and agricultural value chain development.

"By sharing their experiences and challenges, communities feel like part of the work we are doing – opposite of how the coffee sector works with big traders."

©FAO/Karem Del Castillo

FAO found its partner in the SFCC: an international network that promotes sustainable coffee value chains that consider the preservation of biodiversity and ecosystems as a key factor of resilience to the climate crisis, food security and inclusivity. The coalition encourages the cultivation of diverse coffee varieties and directly supports agroecological farming practices. This helps to maintain the resilience of coffee ecosystems and mitigate the risks associated with monoculture farming. Its systemic approach also considers education and shared knowledge creation that generates awareness and empowerment for safeguarding human and labour rights.

The coffee industry is susceptible to market fluctuations and exploitation; however, fostering a robust network between coffee roasters, farmers and Slow Food participants (consumers who tend to be much more mindful of the quality and sustainability of food) can create a resilient and enduring bond. The coalition advocates for the rights and fair treatment of the coffee producers, who often face challenges like low prices, lack of access to markets, and exploitation by large corporations. This helps to address the inequalities within the coffee supply chain; the approach strengthens the entire coffee supply chain, mitigating the effects of market constraints and promoting transparency and traceability of coffee quality and process optimization from field to cup.

Consumers are educated about the social, environmental and economic impacts of their coffee choices, which empowers them to make informed decisions and support sustainable coffee practices. Slow Food consumers, seeking good, clean and fair coffee, become the driving force behind this ethical model. Their willingness to pay a premium for transparently sourced beans incentivizes roasters to seek out strong farmer partnerships. This collective consciousness fosters a sense of shared purpose, creating a network built on trust and mutual benefit.

Direct relationships between roasters and farmers can ensure fairer prices for high-quality coffee. Roasters committed to ethical sourcing prioritize a strong connection between the farmers, guaranteeing a sustainable income. A relationship of trust between coffee farmers and roasters is essential for a sustainable coffee industry. This is because the coffee market is often driven by fast-changing trends, which can force farmers to make costly changes to their production methods to stay competitive. A strong relationship between farmers and roasters can help to mitigate these risks by providing farmers with a stable market.

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The coalition empowers farmer communities through training in marketing and certification, facilitating online and in-person gatherings to foster connections between farmers and consumers, as well as offering activities such as cupping and coffee tasting. These initiatives aim to enhance productivity while enabling farmers to engage with local and global stakeholders and buyers, bolstering their confidence in their sustainable journey.

With fluctuating coffee prices, this strong network acts as a buffer for coffee livelihoods. By prioritizing agroforestry, along with traceable and collaborative coffee sourcing, all stakeholders become invested in the long-term health of the coffee industry. This collaborative approach transcends market constraints, fostering a sustainable and enduring coffee experience for all.

The main beneficiaries of the coalition are the producers. All tools and methodologies developed within its framework belong to the producers and their cooperatives, ensuring open access to address their specific needs. Slow Food emphasizes the importance of producers becoming champions of sustainability, encouraging them to take ownership of the process. Through capacity development modules, participation in networks and narrative tools developed in collaboration with Slow Food, the coalition seeks to enhance the economic and social sustainability of producer communities while broadening their skills and opportunities.

Overall, the SFCC emphasizes the importance of high-quality coffee production through methods like coffee agroforestry, agroecological practices, and sustainable and traditional approaches. By focusing on quality, the coalition encourages consumers to appreciate coffee as more than just a commodity, thereby reducing the emphasis on mass production.

Improved coffee market access can be effective through a variety of strategies:

1. Establishment of direct trade relationships between coffee producers and buyers can bypass traditional middlemen and ensure that producers receive a fair price for their coffee, encouraging transparency and allowing for negotiation terms that benefit producers.
2. Market diversifications reduce producers' dependency on a single buyer or market, opening various opportunities in specialty coffee markets, direct-to-consumer sales and/or domestic markets.
3. Encouraging coffee producers to add value to their produce through processing and branding can increase market competitiveness.

Based on these strategies, the joint action between the FAO–MAFF project and the SFCC put activities on the ground aiming to enhance technical capacities and awareness of communities and institutions to address coffee agroforestry marketing challenges and promote coffee-based agroforestry systems in Malawi and Uganda. As a result, we expect that support to these coffee-producing communities will tackle the costs in compliance with certification standards for agroforestry products while benefiting the environment and the rural communities that participate in the coffee value chain.

The project addressed market constraints and provided capacity development towards more sustainable and profitable coffee agroforestry value chains. Activities focused on three areas of action:

1. identifying marketing challenges of agroforestry coffee and analysing specific constraints for producing agroforestry coffee in Malawi and Uganda;
2. conducting capacity development sessions in marketing options for agroforestry coffee and promoting of agroforestry practices; and
3. disseminating lessons learned at local, regional and global levels to promote agroforestry marketing techniques and coffee-based agroforestry systems.

> ***"Change is in their hands, and whatever their impact, they are contributing to solve it."***

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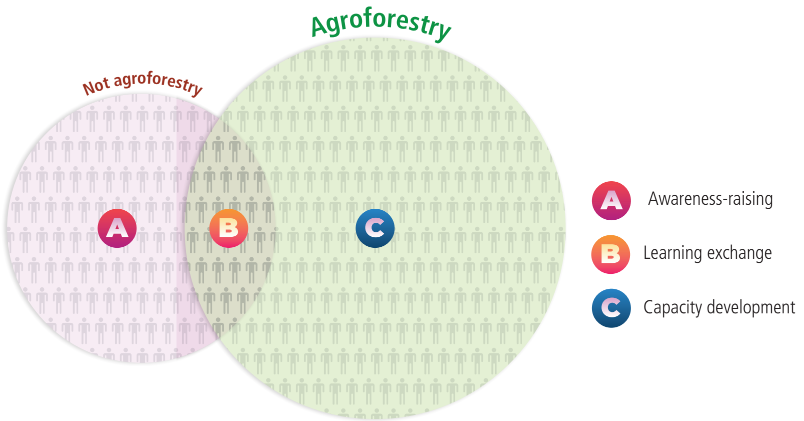
These activities were conducted by Slow Food representatives in Uganda, where there is a national executive and an office in charge in Mukono, and Malawi, where there is no legally recognized national executive, but a network of Slow Food communities headed by local leaders.

Slow Food works both with agroforestry coffee producers and non-agroforestry producers (the former are the majority). In the framework of this project, work with both groups had slightly different approaches. As seen in Figure 1:

- activities on the final steps of the agroforestry coffee value chain, retailing and marketing are focused on Circle B;
- learning exchange of coffee-based agroforestry systems included both agroforestry and non-agroforestry coffee (Circle A and Circle B); and
- awareness-raising and outreach included results and lessons learned from activities of the agroforestry coffee (Circle B).

Figure 1. Participants of project activities



Section 2 describes the activities implemented and presents the findings of this collaboration.

2. The Slow Food Coffee Coalition experience in Malawi and Uganda

Coffee production and market context

Africa's coffee production decreased by 7.2 percent in coffee year 2022/23 to 17.9 million 60 kilogramme bags, holding 10.6 percent of the world's market share (ICO, 2023). During this period, Uganda suffered a 6.8 percent fall in production, totalling 5.6 million bags. This is the second consecutive year of falling production, decreasing for the same reason it did in coffee year 2021/22: continuation of drought (ICO, 2023). Contrary to this fall, Malawi, together with other countries, experienced a 3.2 percent growth rate in coffee production.

Box 2. Country profile, Uganda

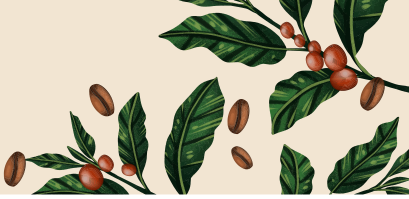
Population: Uganda has a total population of 47.8 million (2023 estimate), with 75 percent living in rural areas (36.2 million in 2021), and has a current growth rate of 3 percent each year. The country is included in the Least Developed Countries list and about 20 percent of the population lives below the poverty line (2016). Agriculture accounts for 28 percent of gross domestic product (GDP) (2017) and about 70 percent of the population is employed in agriculture; however, 14.5 million people are undernourished, with about 31.6 percent of the population facing hunger (CIA, 2021b).

Agricultural sectors: Agricultural land is about 58 percent of the total area (24.1 million hectares), with 13.9 million hectares under agriculture and 10.2 million hectares of forest land (FAO, 2019). The most important products are sugar cane, plantains, cassava, maize, sweet potatoes, milk, vegetables, beans, bananas, sorghum, tea and coffee.

Risks: Around 4.5 million people are affected by water scarcity each year, which is substantially higher in the dry years. Agricultural drought risk is greatest through central Uganda. Flood risk is distributed and varied across the country, but on average 45 000 people are affected by floods each year. Population increase will further strain the availability of arable land and natural resources, as well as overwhelm the country's limited means for providing food, employment, education, health care, housing and basic services (GFDRR, 2019b).

Coffee and climate: Coffee producing areas in Uganda have become drier and hotter over the past three decades. Annual temperatures have risen across the country, potential evapotranspiration has increased, and the distribution of precipitation has become more variable. Global climate models project annual mean temperature to increase by 1.7–1.8 °C until mid-century (Bunn *et al.*, 2019).

Uganda is Africa's second largest coffee producer and the world's tenth largest, holding 10 percent of global coffee farms. Approximately 1.7 million families in Uganda produce coffee, representing 25 percent of rural households. Moreover, 95 percent of the total coffee production is exported, providing livelihood for many workers and traders, accounting for earnings between USD 350–400 million and 18 percent of the country's annual exports (Bunn *et al.*, 2019).



Coffee plays a crucial role in the country's exports and rural livelihoods, with a strong emphasis on smallholder farming of both Arabica and Robusta varieties, including less-traded types like Liberica. Research suggests that coffee production is associated with reduced household poverty, with increased consumption expenditure and a pro-poor effect (Mbowa, 2017). However, this outcome is subject to various external factors such as input costs, market prices, weather conditions and living costs.

Smallholder farmers' decisions about agroforestry adoption in Uganda are influenced by community social norms and beliefs, which promote knowledge exchange over conventional extension approaches. Farmers who have interacted with certain programmes exhibit more motivation to integrate trees into their coffee plantations, driven by factors like attitude and perceived behavioural control.

Additionally, specialty coffee has emerged in Uganda, offering unique sensory characteristics for consumers and higher prices for producers. Private-sector actors, including foreign firms, are exploring opportunities in this niche market, potentially increasing value capture along the supply chain. However, it remains uncertain whether smallholder farmers participating in these value chains will benefit or if they may become overly reliant on a single buyer, affecting pricing and terms of exchange. Cooperative ownership of specialized processing infrastructure may offer a middle-ground solution for sharing the benefits of high-end specialty coffee.

Coffee competing industries (mostly sugar cane) are linked to serious human rights violations through the promotion of monocultures, which has terrible consequences for small-scale farmers and the environment, contributing to deforestation, use of synthetic chemical fertilizers, pollution leading to the depletion of community resources and the disappearance of wild plants and less-resistant varieties. What’s more, it encourages land grabbing and speculation on water and wetlands (rich in plant and animal biodiversity), as well as the introduction of supposedly more productive exotic livestock breeds, hybrid plants and genetically modified seeds.

Box 3. Country profile, Malawi

Population: Malawi has a total population of 21.3 million (2023 estimate), with over 80 percent living in rural areas (17.1 million in 2021) and a current growth rate of 2 percent each year. The country is included in the Least Developed Countries list and about 50 percent of the population lives below the poverty line (2016). Agriculture accounts for 29 percent of gross domestic product (GDP) (2017) and about 80 percent of the population is employed in agriculture; however, 3.5 million people are undernourished with about 17.8 percent of the population facing hunger (CIA, 2021a).

Agricultural sectors: Agricultural land is about 47 percent of the total area (11.9 million hectares), with 5.9 million hectares under agriculture and 2.3 million hectares of forest land (FAO, 2019). The most important products are sweet potatoes, cassava, sugar cane, maize, mangoes, guava, potatoes, tomatoes, pigeon peas, bananas, plantains, tea and coffee.

Risks: Around 1.5 million people are affected by water scarcity each year (mainly in the central and southern regions). Rain-fed agriculture is widespread, with harvests vulnerable to rainfall variability and a large portion of the population at risk of food insecurity due to drought and floods. On average, 100 000 people and 200 education and healthcare facilities are affected by river flooding each year. Rapid population growth and high population density is putting pressure on land, water and forest resources. Reduced plot sizes and increasing vulnerability to climate change further threaten the sustainability of the agriculture-based economy and will worsen food shortages (GFDRR, 2019a).

Coffee and climate: Extreme high temperatures and changing precipitation patterns have promoted the distribution of coffee wilt disease, leading to yield losses and farm abandonments. Climate models project annual mean temperature to increase by 0.5–1.5 °C by 2040, while patterns of future rainfall are highly uncertain. This speaks of high variability in climate-sensitive planning for coffee production and other crops (FCFA, 2017).

Malawi holds a smaller share of the coffee production in Africa, with approximately 11 000 tonnes in 2022, which is rapidly gaining interest in rural households due to its annual USD 4 million revenue (FAO, 2023). The country's coffee industry englobes thousands of smallholder farms, scattered throughout its high-altitude areas, particularly Viphya and the Nyika Plateaux in the north.

According to the SFCC survey (Wienhold and Goulao, 2023), smallholder coffee producers in Malawi showed interest in adopting agroforestry practices for energy and food security benefits (Asfaw and Lipper, 2016). However, coffee is a relatively less significant crop compared to staples like maize, tobacco, tea and sugar cane. Some believe that policies and incentives favouring other crops have hindered coffee's potential, but this viewpoint overlooks the advantages of alternative crops for national food security and risk management.

Malawian coffee farmers typically earn 60 percent of export prices, with the rest going to cooperatives and unions. Despite high demand for Malawian coffee, low sale prices and high input costs threaten these organizations. The question arises as to why prices haven't been raised – this is possibly because coffee demand is influenced by factors beyond the country of origin, making it susceptible to substitution based on price and quality considerations.

In northern Malawi, most smallholder coffee is marketed through intermediaries, including the Phoka Coffee Cooperative. Challenges in direct marketing include transportation, processing infrastructure, working capital and quality assurance capabilities.

Challenges and constraints of small-scale coffee producers

Data regarding coffee systems in Malawi and Uganda, market challenges, production weaknesses, and opportunities and strengths, were collected from a literature review and focus group interviews. The following was explored: information on existing coffee certifications, resulting in the possible preference of selected communities for a participatory guarantee system (PGS) approach, and the possibility of using blockchain traceability.

The Slow Food coffee communities engaged in Uganda are in Mbale, Manafwa, Mukono, Buikwe, Kasese, Luwero and Sembabule (around the Mont Elgon area). There are over 400 farmers organized in seven different groups, namely Bukusu Yetana, Mt. Elgon Nyasaland Coffee Presidium "Miale Tuban Mixed Farmers Group", Ntanzi coffee, banana and local vegetable producers, Luwero Kisansa coffee, Bukunja Organic Link (BoCoVaCo), Kanoni coffee producers of Ssembabule, and Mabindo Cooperative Society.

In Malawi, the project engaged eight coffee-producing farmers from the Junju region in the northern part of the country. These farmer groups – namely Chakaka, Kajoni, Mantchewe-Nkhota-Mbulamaji Youth, Vungu-Vungu, Nkhonthwa, Ntchenachena, Mphachi and Salawe – belong to the Phoka ethnic tribe. They are part of the Phoka Coffee Growers Cooperative, a registered cooperative to the Malawi government under the Ministry of Trade and Industry.

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> ***"We don't want to stop at the gate; we wish to follow our coffee from the farm to the market."***

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Through mapping and companioning coffee-producing communities in both countries, Slow Food collected difficulties and possible solutions.

The main difficulties encountered in both countries were:

- the lack of income alternatives to meet farmers' immediate local needs;
- the missing farmers' formal structures (organizations and cooperatives) and the lack of knowledge about the bureaucracy behind establishing them;
- weak land tenure rights and limited access to finances to secure ownership; and
- mutual distrust between buyers and farmers to convince each other to establish and promote agroforestry coffee.

An additional difficulty encountered only in Malawi is the lack of a strong supply for export, as it is a landlocked country.

Table 2 presents the most commonly raised challenges and constraints by the coffee producers participating on the project.

Box 5. Challenges of agroforestry production in Malawi and Uganda

Farm-level resources and knowledge include:

- individual farmer's capacity, technical skills and knowledge required for effective tree planting, care and management;
- lack of awareness and knowledge about the principles, benefits and best practices of agroforestry;
- difficulty of purchasing inputs without access to credit or loans;
- disruption of the systems after huge investments and failing efforts;
- the initial monetary investments and cash flow return times;
- individual farmer's financial resources and perceptions (agroforestry systems are not implemented simply because they are not considered an option);
- reduced access to affordable credit and financial services needed;
- limited availability and affordability of adequate tools and equipment necessary for tree planting, system maintenance and coffee processing;
- practices are labour- and time-intensive, limiting the time engaged in offfarm activities;
- inadequate transportation and infrastructure needed to move inputs to the farm and products to markets;
- limited access to technical support, training programmes and extension services on agroforestry practices;
- uncertainties related to tree growth, climatic hazards and disease susceptibility; and
- limited access to local data on environmental conditions for extensionists.

Markets and policies include:

- low selling prices and delayed sales;
- difficulty in accessing the market;
- undeveloped value chains (selling green coffee beans);
- price volatility and fluctuations in demand;
- lack of proper transportation, storage and processing facilities that affect the marketing and value-addition processes;
- lack of adequate knowledge and access to timely and accurate market information leads to uninformed decisions about product sales and faulty marketing and income generation;
- limitations posed by laws, regulations, policies, and communal and institutional frameworks to support export;
- incentives prioritizing staple crops such as maize, tea and sugar cane;
- contradictory sectoral land-use policies;
- low investments by government;
- insecure land tenure and property rights (fear of land grabbing);
- land tenure systems that favour large landholders; and
- compliance with certification standards which are costly and complex for smallholder farmers but necessary to ensure their access to markets.

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Overcoming challenges through capacity development and awareness-raising

After the initial step of identification, addressing these challenges and improving access to markets, resources and services must follow with providing training and technical support to enhance farmers' knowledge and skills, as well as ensuring that land tenure systems and policies are supportive of long-term agroforestry investments. Additionally, fostering a supportive environment through farmer networks, governments, non-governmental organizations, extension services and community engagement can help overcome these constraints.

As action on all said fields should be conducted in a coordinated and timely manner, a guiding approach is needed to orchestrate all efforts. As such, a developed value chain offers a strategy to enhance farmers' access to markets by participating in the entire value chain, with the support of other actors, for improved agroforestry systems and livelihoods.

The goal of the training conducted in Uganda was to equip participants with skills and knowledge in agroforestry for coffee production as a means to mitigate and adapt to climate change effects. Moreover, farmer communities raised their difficulties in applying for expensive third-party certification. Thus, the inclusion of the PGS into the training materials met their willingness to participate in this project.

"We advised on agroecology practices, but also discovered what they are already doing."

©FAO/Karem Del Castillo

In Uganda, a total of 118 farmers (35 percent women) benefited from the interactive training. Participants were encouraged to think about the applicability of agroforestry in their respective farms. Proper tree management in agroforestry was emphasized, highlighting the importance of planting trees in the right place and spacing to avoid competition with coffee plants. Proper tree management in agroforestry was emphasized, highlighting the importance of planting the right tree in the right place with the right spacing to avoid competition and the spread of coffee pests within the coffee field.

Materials were structured following the SFCC's guidelines for good, clean and fair coffee, which considers: the origin of the variety of coffee plants grown; cultivation techniques including height, shadow and overall sustainability; manual and selective harvesting of ripe berries; standards for dry, fully washed, semi-washed, and honey processing; traceability; limited commercial intermediates; a differentiated price; and respect for Indigenous Peoples' culture and social differences.

Participants shared their understanding of the importance of trees in agriculture and identified benefits such as shade, manure and rainfall formation. Participants could identify suitable trees for their coffee-growing regions and types, as well as tree species to avoid as intercrops, such as thorny and poisonous species. Participants discussed their motivations for choosing coffee farming, which included income generation, coffee-growing sustainability, contributions to Uganda's development, and additional benefits like firewood and organic manure. Identified challenges in coffee production included: pests, diseases, theft, price fluctuations, competition for resources, climate change and land grabbing.

They also discussed the decrease in tree cover over the years and the disappearance of certain tree species within their localities. Strategies for restoration were also shared. The coffee farmers were encouraged to take the initiative to plant friendly trees and support those growing within their farms by weeding and managing them so that they can be of benefit in the face of climate change.

“We are aware of climate change, but we have no strategies.”

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Three leaders from each community were selected to be trained under a training of trainers (TOT) to support their communities in agroforestry. All participants gained knowledge about the need to integrate trees for increased coffee production amidst climate change effects; some have already started planting trees on their coffee farms.

The capacity developing workshops conducted by Slow Food in northern Malawi targeted some of the farmers belonging to the Phoka Coffee Growers Cooperative. The purpose of these workshops was to address market constraints and enhance farmers' capacities in managing agroforestry value chains and adopting sustainable coffee certification systems (particularly the PGS). Over 342 farmers from 13 coffee communities (nearly half of them women) participated in 11 workshops.

Overall, the workshops aimed to empower coffee farmers with the knowledge and skills needed for sustainable and profitable coffee agroforestry value chains while promoting PGS certification for SFCC communities. These workshops followed a previous training of trainers (TOT) session with members and farmer representatives.

“We want to see things change.”

©FAO/Rikiya Konishi

Farmers became aware of the importance of the global coffee network of farmers, producers, processors, roasters and consumers who work collectively, emphasizing the importance of sustainable coffee farming practices, including agroforestry. They shared practical experiences of agroforestry systems and discussed the benefits, as well as recognized the need to develop community tree nurseries and agroforestry demonstration plots.

Farmers were introduced to PGS certification, discussing its advantages and disadvantages. The training covered the formation of guarantee committees and groups sanctioned by the ethical committee, which would monitor and review the adoption of the guarantee sheet.

Box 4. What is a participatory guarantee system (PGS)?

A participatory guarantee system (PGS) is a locally focused quality assurance system. It certifies producers based on the active participation of stakeholders, built on a foundation of trust, social networks and knowledge exchange (IFOAM, 2022).

A PGS is an alternative certification that consists of the creation of a second-party certification model for geographically close producers and external actors. Just like a third-party certification system, it guarantees the credibility of the produce and its links to local and alternative marketing approaches. The difference between these two is in approach: direct participation of farmers, consumers and other stakeholders in the verification process that PGS requires.

Initiatives related to a PGS vary in methodology and approaches, but shared key elements include: a shared vision, trust, horizontality, transparency, participation and learning process. Active participation on the part of the stakeholders results in greater empowerment and responsibility.

In particular for coffee value chains, the introduction of the participatory extension approach in the last decades represented the reversal of the traditional top-down agricultural research and extension pathway. It requires an equitable partnership between rural people, researchers and extension workers, and recognizes the importance of rural communities as actors in the entire process.

Farmers proposed several recommendations, including the establishment of agroforestry nurseries, the development of agroforestry demonstration plots, community coffee nurseries, and organic compost-making centres in coffee communities. These initiatives aim to promote sustainable coffee production and improve farmers' livelihoods.

In addition to the several trainings implemented, samples of green coffee were collected and shipped from communities from both countries, as well as evaluated by some roasters (Lavazza, Bloom Coffee, Critical Coffee, Dorpstery, Bfarm and Ialty) through the Specialty Coffee Association protocol. Results were satisfactory, which is promising for the future of the coffees produced by the engaged farmer groups and communities.

Once trainings were finalized, the project focused on the importance of sharing knowledge and experiences at the local level. An event in Uganda was envisioned as the most impactful way of presenting the results and lessons learned during the project, resulting in the **Fourth Slow Food Coffee Festival: "Unlocking community barriers for profitable and open-source knowledge on coffee agroforestry value chain"**.

> ***"We like when roasters come visit. It means we do good work."***

©freepik.com

The main objective of the festival was to promote the identity of coffee grown in an agroforestry system respectful to the environment, as well as to strengthen the network of all coffee actors who believe in empowering communities as a key to ensuring a sustainable and profitable agroforestry coffee value chain. This was achieved by providing an exhibition and discussion forum for both local and international players in the coffee value chain, including producers, roasters, coffee shops, partners and farm-based export initiatives.

The coffee festival brought together a diverse assemblage of over 900 participants – mostly from all regions of Uganda, but also from the international community – marking a significant gathering within a global coffee landscape. The festival served as a focal point for the celebration and appreciation of the country's rich coffee heritage.

The coffee festival helped participants to understand that harnessing biodiversity is key to improving the coffee value chain. There was a better understanding of coffee cultures and traditions that were exhibited from each coffee-growing region of the country, highlighting that each region has a unique coffee variety partly determined by microclimates.

The festival proved that the journey to high-quality specialty coffees starts with a sustainable coffee farming system anchored by smallholder farmers – emphasizing the importance of setting the role of smallholder coffee farmers within the global coffee value chain.

The festival was a perfect opportunity for exchanging knowledge, which needs to take place regularly with the inclusion of more diversified groups of participants. Speakers pointed out issues of climate change that need immediate attention; they also shared opportunities and action points that coffee growers can tap into to improve their economic well-being, involving the embracing of the agroforestry system of farming. The coffee festival highlighted that post-harvest handling facilities remain a major challenge in coffee-growing communities. Post-harvest handling is very important in reducing waste and improving financial gains for smallholder farmers.

> ***"We didn't know how coffee tasted. Once, they brought our own coffee already ground – the smell was so strong. We loved that aroma!"***

©FAO/Emanuele Dughera

Communication materials about the event were globally disseminated. Since the end of the festival, many coffee-growing communities have been increasingly developing interest in embracing coffee agroforestry. Many testimonies from SFCC communities who attended the festival and had already incorporated coffee-based agroforestry systems from earlier trainings proved a point to numerous participants who are currently expressing interest.

Coffee value chains for improved climatic resilience

This experience is presented as an example of how simple, properly structured tasks may improve resilience and livelihoods in the context of climate change and fluctuating markets. The participatory identification of faced challenges revealed a roadmap towards what is needed for improving and expanding the adoption of good practices such as the ones promoted by the SFCC.

Today, the coffee sectors in Malawi and Uganda are disadvantaged by limited policies, adverse incentives, low investments and a lack of coordination between the governmental sectors to which it contributes (namely agriculture, forestry, rural development, environment and trade). We perceive the climate sensitivity of coffee as an overarching topic that may promote the coordination needed among these sectors, and then expand the potential of agroforestry for strengthening farmers, communities and national economies.

At the policy level, planning and investments incorporating the disaster risk reduction approach are much needed. Climate-aware management can effectively serve as a tool for land conservation and sustainable livelihoods, thereby improving the resilience of farmer communities.

Joint action for introducing a climate-resilient focus in the coffee value chains must include capacity development, knowledge exchange, provision of resources and development of financing initiatives on sustainable food production and consumption. Developed capacities should allow farmers to protect and exchange good practices of coffee production for increased quality and preserved environment, such as growing traditional coffee varieties and enhancing practices that improve soil health, regulate microclimates and enhance biodiversity.

Working with regional and local coordinators, young and old volunteers and Indigenous Peoples provided the farmers with a direct platform of exchange, in which agrobiodiversity protection, economic development and education needs were raised for the proper management of community resources against climatic hazards.

Individual farmer's resources, knowledge, perceptions, capacities and technical skills are the entry point for improving their own resilience; however, effectively engaging in markets requires collaboration. During a filed visit to the area, we noticed that the mutual establishment of roles and responsibilities of each participant of the supply chain created connections and improved the relationship between producers and buyers, empowering farmers by increasing their visibility and promoting the identity and knowledge of coffee.

Thus, grassroots organizations grown into a global movement such as the SFCC facilitate access to necessary resources and services for enhancing coffee production and quality, leading to specialized markets with better prices and higher incomes invested into in- and off-farm activities that together reduce the vulnerability of communities dependent on coffee production. Likewise, national and foreign investments should engage with grassroots networks that comply with sustainable coffee production and equitable returns for farmers.

"Young leaders become regional coordinators, and they are usually chosen by the communities."

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The most limiting aspect of agroforestry adoption, preparedness for coffee sensitivity to climate and quality enhancement is related to finance (RFILC, 2015). Greater support to coffee producers and cooperatives in accessing financial resources and investment opportunities is paramount. Farmers should aim to access markets that recognize the benefits of traditional, and sustainable production systems and pay a fair price that accounts for coffee quality, environmental protection and improved livelihoods.

Activities under this project have led to measurable changes for participating farmers. A specific change relates to accessing this type of market. Based on the samples sent for the coffee quality analysis, a noted roaster showed interest in the coffee produced by one of the participating cooperatives in Uganda. It is worth noting that this cooperative grows Liberica coffee, exemplifying that local varieties that financially and climatically support livelihoods have a bright future in the region.

Equally, Miale Tubana Mixed Farmers Group was selected to participate in the 2023-2024 Business Incubator and Accelerator (BIA) program, jointly implemented by the Mountain Partnership Secretariat at FAO and the Global Environment Facility Small Grants Programme (GEF SGP) implemented by the United Nations Development Programme (UNDP)[9]. Through this grant programme, the organization received technical assistance and capacity development to increase communities' resilience by supporting innovative entrepreneurship in agricultural value chains.

Outside of the project's scope – but worth exploring – is the expansion to other areas of rural development, motivating coffee producers' organizations and cooperatives to guide activities not only in coffee retail but also cultural and tourism value chains.

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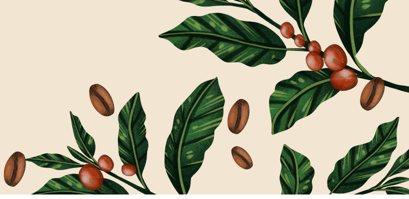
[9] Further information available at: https://www.fao.org/mountain-partnership/our-work/resource-mobilization/business-incubator-accelerator/en/



3. Recommendations

Throughout the document, the potential of coffee agroforestry as a sustainable, adaptive agricultural model – one that not only addresses the pressing challenges of climate change but also redefines the future of coffee farming – is observed.

Looking ahead, the activities set in place by the SFCC in Malawi and Uganda have created a path to be continued. First and foremost, the coalition must continue to nurture the relationships cultivated within communities and among partners. The strength of this initiative lies in a shared commitment to sustainable practices, local knowledge exchange and the preservation of biodiversity. Second, FAO should guarantee the continuation of the work and the creation of synergies with offered initiatives. Leverage of existing labelling and certification schemes promoted by FAO, such as the Mountain Partnership Products Initiative, can further sustain these environmentally and ethically sound value chain approaches-promoting short, domestic value chains while ensuring transparency and trust between producers and consumers, fair compensation for the primary producers, conservation of agrobiodiversity, and preservation of ancient techniques.

Education and capacity development must remain at the forefront of these efforts – not only in African countries and coffee production. Empowering farmers with the tools, knowledge and skills to implement agroforestry practices everywhere in an effective manner is paramount. Training programmes, workshops and knowledge sharing platforms must be expanded and made accessible to all, ensuring that they reach communities and practitioners.

Furthermore, FAO must advocate for policies that support and incentivize agroforestry adoption, encouraging and supporting Member Countries to develop comprehensive agroforestry policies and strategies. The recognition of agroforestry's contributions to climate resilience, food security and environmental conservation must be reinforced in local, national and international policy agendas.

The present work done on agroforestry production should inspire others to embark on similar endeavours. The SFCC's experience is evidence of the transformative power of sustainable, climate-resilient farming practices. Sharing experiences, stories, successes and challenges at the global level will bring agroforestry and disaster risk reduction forward.

The pursuit of climate-resilient livelihoods through agroforestry should be a commitment made by governments, communities, scientists, civil society and the private sector. The following sections offers some points for action in terms of climate-resilient value chains, agroforestry adoption and strengthening the coffee value chain.

Closing the gap in agroforestry adoption and maintenance

The following recommendations can be made:

- carefully contemplate and plan agroforestry to offer the ecological services prioritized by the farmers, based on their needs and livelihoods
- increase access to credit, finance and advisory services, combined with mechanisms to stabilize income;
- enhance technical support and extension services for the supply of good quality inputs (such as seed, fertilizer and information on tree management);
- ensure substantial investments in seed collection and nurseries;
- integrate agroforestry practices (including crop production, pastureland management, animal husbandry, fish farming and a range of other agricultural enterprises);
- embrace green technology for efficient processing, packaging and transportation, reducing post-harvest losses and environmental impact;
- revise government policies and incentives on land tenure, agriculture, and forestry and develop agroforestry-specific policies
- invest in rural infrastructure, such as roads and transportation networks, to facilitate the efficient movement of agroforestry products from farms to markets; and
- ensure multistakeholder collaboration that promotes and sustains these recommendations.

Strengthening climate-resilient coffee production

The following recommendations can be made:

- improve access to diversified markets that leads to improved outcomes from the commercialization of farm produce;
- ensure a fair price that offers a level of profitability sufficient to provide an acceptable standard of resilient livelihoods;
- sustain a greater variety of more consistent buyers, clearinghouses, bulking services and marketing services;
- provide farmers with market delivery information, including methods on value addition, current prices and market fluctuation;
- ensure that cooperative structures offer training, marketing assistance, shared ownership of specialized processing infrastructure and distribution of the surplus generated from upgrading coffee quality;
- develop and maintain traceability throughout the entire supply chain that gives credit to farmers' work by providing clear labelling and detailed information on the specific origin of the coffee (such as where and how it has been produced);
- increase transparency from traders to producer organizations for trust and the likelihood of farmers' willingness to organize themselves in commercial production;
- ensure mutual determination of prices, cost allocation and service charges;
- create customized certification schemes and standards for traditional coffee production and trading systems;
- facilitate access to international markets by reducing trade barriers and promoting exporting agreements; and
- ensure multistakeholder collaboration for awareness-raising, knowledge exchange and connection of constituents.

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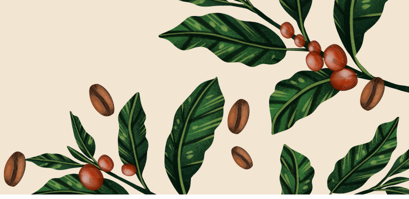

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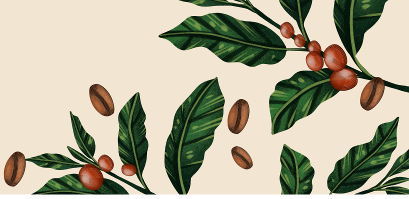

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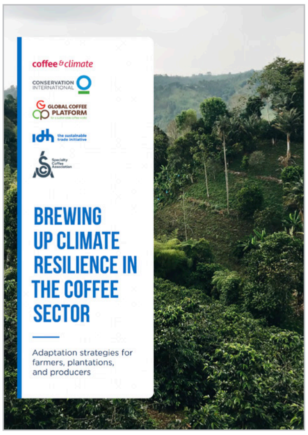
Appendix 1: Toolkit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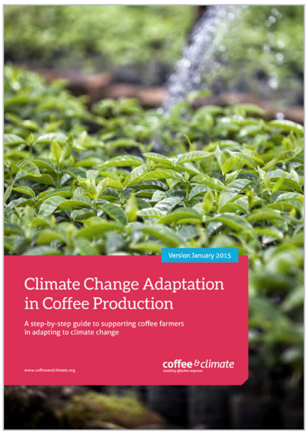
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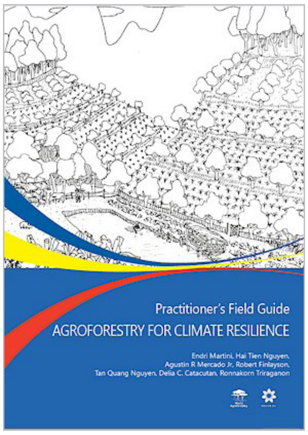
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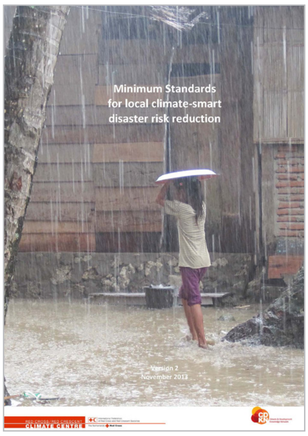
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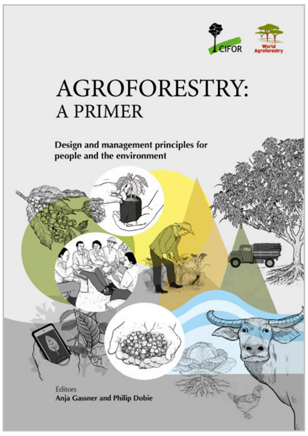
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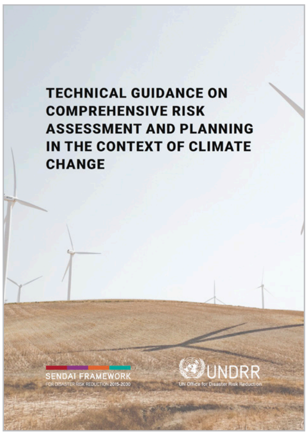
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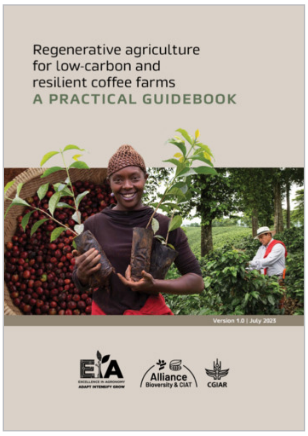
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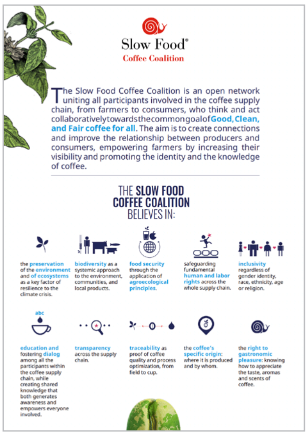
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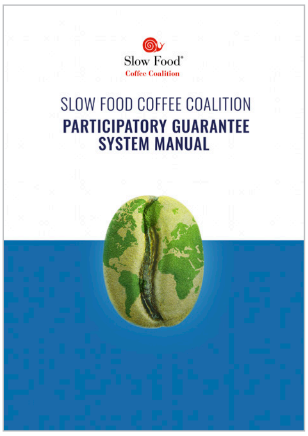
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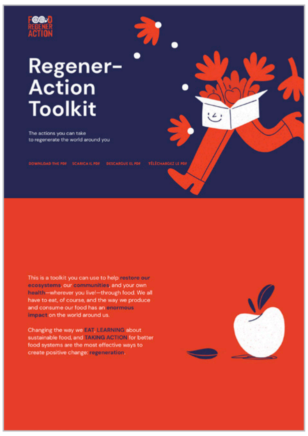
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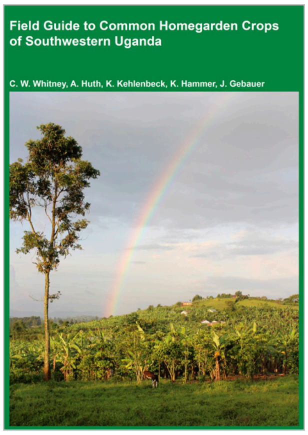
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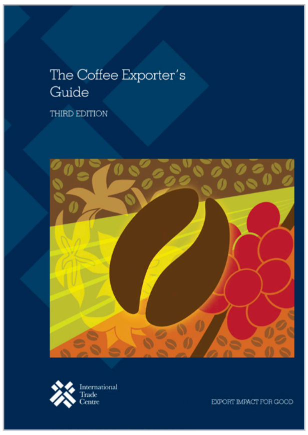
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